

**Adaptive Antenna Array Wireless Data Access Point****ABSTRACT OF THE DISCLOSURE**

The invention provides systems and methods for providing improved wireless data communication. Preferred embodiments of the present invention utilize multiple antenna beams in the forward link to provide increased forward link capacity and/or improved forward link signal quality. Multiple orthogonal sub-pilots are transmitted from a plurality of antenna elements for use in determining forward link channel characteristics according to a preferred embodiment. Forward link channel estimates may then be made by the preferred embodiment subscriber units and provided in a reverse link control channel to the corresponding base station. Multiple beams may also be utilized in the reverse link to provide increased reverse link capacity, such as for use in providing feedback of forward link channel estimates.

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